

WHAT IS CLAIMED IS:

1. A peptide which:

i) comprises the sequence

Trp₁-Glu₁-Val-Leu-Cys₁-Trp₂-Thr₁-Trp₃-Glu₂-Thr₂-Cys₂-Glu₃-Arg

5 (SEQ ID NO: 4)

ii) competes with SEQ ID NO: 4 for binding FVII/FVIIa in an *in vitro* assay and having between 1 and 8 amino acids of SEQ ID NO: 4 substituted according to the following:

Trp₁ is an amino acid selected from the group consisting of Trp, Phe, Tyr, Leu, 10 Ile, Met, Val and Ala;

Glu₁ is any amino acid;

Val is an amino acid selected from the group consisting of Val, Trp, Phe, Tyr, Leu, Ile, Met and Ala;

Leu is an amino acid selected from the group consisting of Leu, Trp, Phe, Tyr, 15 Ile, Met, Val and Ala;

Trp₂ is amino acid selected from the group consisting of Trp, Phe, Tyr, Leu, Ile, Met, Val and Ala;

Thr₁ is any amino acid;

Trp₃ is an amino acid selected from the group consisting of Trp, Phe, Tyr, Leu, 20 Ile, Met, Val and Ala;

Glu₂ is any amino acid;

Thr₂ is any amino acid;

Glu₃ is any amino acid;

Arg is an amino acid selected from the group consisting of Arg, Lys, Leu, Trp, 25 His, Met and Ile;

and

iii) comprises the peptide of ii).

2. The peptide of claim 1 which:

i) comprises the sequence

Trp₁-Glu₁-Val-Leu-Cys₁-Trp₂-Thr₁-Trp₃-Glu₂-Thr₂-Cys₂-Glu₃-Arg

30 (SEQ ID NO: 4)

ii) competes with SEQ ID NO: 4 for binding FVII/FVIIa in an *in vitro* assay and having between 1 and 8 amino acids of SEQ ID NO: 4 substituted according to the following:

35 Trp₁ is an amino acid selected from the group consisting of Trp, Phe and Leu; Glu₁ is any amino acid;

Val is an amino acid selected from the group consisting of Val and Ile;

Leu is an amino acid selected from the group consisting of Leu, Ile, Met, Val and Ala;

40 Trp₂ is amino acid selected from the group consisting of Trp, Phe, Tyr, Leu and Met;

Thr₁ is any amino acid;

Trp₃ is an amino acid selected from the group consisting of Trp, Phe and Tyr;

Glu₂ is any amino acid;

Thr₂ is any amino acid;

Glu₃ is any amino acid;

Arg is an amino acid selected from the group consisting of Arg, Lys, Leu and
5 Trp;

and

iii) comprises the peptide of ii).

3. The peptide of claim 2 having an IC₅₀ for FVII/FVIIa of less than
1 μ M.

10 4. The peptide of claim 3 having an IC₅₀ for FVII/FVIIa of less than
100 nM.

5. The peptide of claim 4 having an IC₅₀ for FVII/FVIIa of less than 10
nM.

15 6. The peptide of claim 5 which binds FVII/FVIIa and inhibits FVIIa
activity.

7. The peptide of claim 6 which blocks an activity associated with
FVIIa selected from the group consisting of activation of FVII, activation of
FIX and activation of FX.

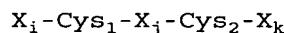
8. The peptide of claim 7 which inhibits activation of FX.

20 9. The peptide of claim 8 having an IC₅₀ for inhibiting FX activation
of less than 10 μ M.

10. The peptide of claim 9 having an IC₅₀ for inhibiting FX activation
of less than 100 nM.

25 11. The peptide of claim 10 having an IC₅₀ for inhibiting FX activation
of less than 5 nM.

12. The peptide of claim 11 having the following formula:



wherein X_i is absent or is between 1 and 100 amino acids; X_j is 5 amino acids
and X_k is absent or between 1 and 100 amino acids.

30 13. The peptide of claim 12 wherein X_i and X_k are between 1 and 50 amino
acids.

14. The peptide of claim 13 wherein X_i and X_k are between 1 and 10 amino
acids.

15. The peptide of claim 14 having the formula

35 Xaa₁-Xaa₂-Xaa₃-Xaa₄-Xaa₅-Xaa₆-Cys-Xaa₈-Xaa₉-Xaa₁₀-Xaa₁₁-Xaa₁₂-Cys-Xaa₁₄-
Xaa₁₅-Xaa₁₆-Xaa₁₇-Xaa₁₈

wherein Xaa₁ is an amino acid

Xaa₂ is an amino acid

Xaa₃ is an amino acid selected from the group consisting of Trp, Phe, Leu, Ala,
40 Met and Val;

Xaa₄ is an amino acid;

Xaa₅ is an amino acid selected from the group consisting of Val, Ile, Ala, Trp

and Tyr;

Xaa₆ is an amino acid selected from the group consisting of Leu, Ile, Met, Val and Ala;

Xaa₈ is selected from the group consisting of Trp, Phe, Leu, Met, Ala and Val;

5 Xaa₉ is an amino acid

Xaa₁₀ is an amino acid selected from the group consisting of Trp, Phe, Met and Tyr;

Xaa₁₁ is an amino acid;

Xaa₁₂ is an amino acid;

10 Xaa₁₄ is an amino acid except proline;

Xaa₁₅ is an amino acid selected from the group consisting of Arg, Lys, Leu, Trp, His and Met;

Xaa₁₆ is an amino acid;

Xaa₁₇ is an amino acid; and

15 Xaa₁₈ is an amino acid.

16. The peptide of claim 15 wherein

Xaa₃ is selected from the group consisting of Trp, Phe, Leu and Ala;

Xaa₅ is selected from the group consisting of Val, Ile and Ala; and

Xaa₈ is selected from the group consisting of Trp, Phe, Leu, Met and Ala.

20 17. The peptide of claim 16 wherein

Xaa₃ is selected from the group consisting of Trp, Phe and Leu;

Xaa₅ is selected from the group consisting of Val and Ile;

Xaa₆ is selected from the group consisting of Leu, Ile, Met and Val;

Xaa₈ is selected from group consisting of Trp, Phe, Leu and Met;

25 Xaa₁₀ is selected from the group consisting of Trp and Phe; and

Xaa₁₅ is selected from the group consisting of Arg, Lys, Leu and Trp.

18. The peptide of claim 17 wherein -Xaa₈-Xaa₉-Xaa₁₀-Xaa₁₁-Xaa₁₂- is -Trp-Thr-Trp-Glu-Thr- (SEQ ID NO:100).

19. A method of inhibiting FVIIa activity comprising the step of:

30 a) contacting FVIIa with a peptide of claim 1 in the presence of tissue factor and under conditions which allow binding of the compound to FVIIa to occur.

20. A method for selecting a compound which blocks FVII/FVIIa activation of FX comprising the steps of:

35 (1) contacting FVII/FVIIa with a compound of claim 1 in the presence and absence of a candidate molecule under conditions which allow specific binding of the compound of claim 1 to FVII/FVIIa to occur;

(2) detecting the amount of specific binding of the compound of claim 1 to FVII/FVIIa that occurs in the presence and absence of the candidate compound 40 wherein the amount of binding in the presence of the candidate compound relative to the amount of binding in the absence of the candidate molecule is indicative of the ability of the candidate compound to block FVII/FVIIa activation of FX.

21. A method of inhibiting the activation of FX comprising contacting FVII/FVIIa with a compound that prevents the interaction of FVII/FVIIa with a compound of claim 1.

5 22. The method of inhibiting the activation of FX of claim 21 comprising contacting FVII/FVIIa with a compound that prevents the interaction of FVII/FVIIa with SEQ ID NO: 4.

23. The method of claim 22 wherein the contacting occurs *in vivo*.

24. The method of claim 22 wherein the contacting occurs *in vitro*.

10 25. A method of treating a TF/FVIIa mediated disease or disorder in a host in need thereof comprising administering to the host a therapeutically effective amount of a compound of claim 1.

26. A method of treating a TF/FVIIa mediated disease or disorder in a host in need thereof comprising administering to the host a therapeutically effective amount of the peptide of claim 1.

15 27. A pharmaceutical composition comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

28. A pharmaceutical composition comprising the peptide of claim 27 and a pharmaceutically acceptable carrier.

29. The composition of claim 28 which is suitable for inhalation.

30. The composition of claim 29 which is dry powder.

31. The composition of claim 29 which is a liquid.